

moving or changing elements. It is possible, and to be hoped, that this technology or something like it will make possible yet another scientific method for medicine which can be applied to the study of the ever-changing, interacting and as yet poorly understood multifactorial aspects of health and disease. Such a method is sorely needed.

It seems obvious that there is more than one acceptable scientific method in medicine and that more are probably needed. It is suggested that a basic criterion of whether a method is scientific or not is whether it works for the purpose intended. For medicine it is essential that methods be developed that work well enough, even if not perfectly, and that they produce timely results in terms of the life span of both physicians and their patients.

—MSMW

Scurvy, Ascorbic Acid and Megavitamins

DESPITE ADVANCES in medicine, improved living conditions and nutrition, scurvy still exists in urban centers.¹ A great deal is now known about its pathophysiology. Severe ascorbic acid deficiency affects the metabolism of collagen, folate and iron. The most important defect in scurvy is abnormal collagen biosynthesis. It leads to the escape of blood into tissues, the key clinical feature.

In this issue Richard Vilter, distinguished professor of medicine of the University of Cincinnati, reports on the history and clinical aspects of scurvy. Long familiar with the condition, he gives a detailed, scholarly account of the biochemistry of ascorbic acid deficiency. He lists the diseases, from common cold to cancer, for which ascorbic acid, usually in very large doses, has been tried and reports how these various applications are long on theory and short on solid data. He also points out that megadoses of ascorbic acid may not be innocuous. The only reasonable indication for the prescription of a large dose of vitamin C is the Ehlers-Danlos syndrome, which is caused by a congenital, qualitative defect of collagen. Vilter's article makes it clear that vitamin C, similar to vitamin B₁₂, has an extremely narrow range of effectiveness: In deficiencies, administration of these vitamins produces spectacular clinical successes, but these triumphs are not transferrable to conditions where no lack

exists. It may be tempting to use potent agents that are relatively free from side effects in large doses where cures as yet do not exist, but this romantic approach to clinical problems does not work.

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REFERENCE

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Shortcuts to Athletic Success?

FROM THE ARTICLE "Chemical Warfare: Drugs in Sports," elsewhere in this issue, it would appear that scientific documentation of efficacy is not among the criteria used in selecting chemical or nutritional ergogenic aids for athletes. While some of the substances have legitimate uses for persons who are less than healthy (for example, packed red cells for anemic patients and anabolic steroids for those who are cachectic), it seems a perversion of science to administer them to the fit in hopes of attaining suprafitness. In spite of documented undesirable side effects and (generally) undocumented desirable results, the search for new substances and the continued use of *traditional* chemical aids apparently go on unchecked—save for the efforts of the Olympic drug testing group.

The multimillion dollar testing for the presence of "doping substances" apparently has had some deterrent effect; there have been fewer medals withdrawn in recent years. Yet if this deterrent effect truly exists—and is not just temporary avoidance of prohibited substances during selected international events—why then do the testing procedures become more comprehensive, sophisticated and expensive each year?

Elaborate drug testing may indeed aid in ferreting out cheaters but it also piques the curiosity of that group of zealous competitors who would dearly love to find a shortcut to athletic excellence. It is difficult to convince these people that the testing is done to avoid serious health hazards rather than to discover the presence of substances that might indeed enhance performance. In short, publicizing the use of elaborate testing methods might actually encourage the use of the substances for which the tests are being done.

Although dealing with the effects of *doping* in internationally competitive athletes is not among

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the issues associated with the day-to-day practice of medicine, managing patients seeking shortcuts to fitness is an increasing problem. Ergogenic aids of a more subtle variety are not uncommonly used by average participants in sports or recreational activities. Examples include the use of diuretics to aid high school wrestlers in "making weight," antihistamines to enhance *bulking-up* and tranquilizers to control the (normal) anxieties associated with athletic competition. One might also include the indiscriminate use of anti-inflammatory preparations or cortisone injections for overuse tendinitis, when a day or two of rest or a proper rehabilitation program might better treat that problem. Notably, these substances are not mysterious compounds obtained through an athletic *underground*, but rather prescription medications administered by physicians usually as a sincere effort to help a patient achieve athletic goals. Yet in these and similar instances the indications for the use of these drugs are hardly less questionable than the indications for massive doses of vitamin E, liquid protein, nutrient preparations or vitamins containing strychnine.

Responsible, successful coaches and athletes are the first to note that athletic achievement is primarily the result of arduous, long-term training and conditioning. Unfortunately, the increasingly large population of recreational athletes have not gotten this message. A tennis player, for example, might well prefer to believe that the treatment of choice for his or her tennis elbow is repeated cortisone injections, rather than spending four hours on the court learning to hit a backhand shot properly.

As the fitness craze grows and the number of recreational athletes seeking medical care increases, the opportunities to use or misuse ergogenic aids will also increase. Physicians will be faced with more questions regarding training and conditioning methods, injury prevention and other sports-related medical factors. Consequently, physicians must be prepared to respond to these questions because herein lies a key to the long-term management of many sports-related problems.

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